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REMARKS

Claims 1-8, 12-22, and 24-42 are currently pending in the subject application and are presently under consideration. Claims 1, 13, 14, 19, 22, and 36 have been amended herein. A marked-up version of claim amendments made herein is found on pages 2-7 of this Reply. It is respectfully submitted that the amendments made herein do not introduce new subject matter into the claims, and, therefore, no new search is required by the Examiner.

Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

I. Rejection of Claims 1-3, 18-22, 24, 27-30, 35 and 36 Under 35 U.S.C. §102(b)

Claims 1-3, 18-22, 24, 27-30, 35 and 36 stand rejected under 35 U.S.C. §102(b) as being anticipated by Gotou *et al.* (U.S. 4,933,834). Withdrawal of this rejection is respectfully requested for at least the following reasons. Gotou *et al.* does not disclose each and every aspect of the present invention as set forth in the subject claims.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ 2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the...claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

The present invention relates to systems and methods for controlling and diagnosing the health of a machine, and more particularly, to systems and methods for controlling and diagnosing motorized systems according to vibration, pressure, temperature, speed, and/or current analysis. Independent claim 1 has been amended to recite "A method for controlling a motorized system comprising: measuring an attribute of the motorized system, the attribute comprises at least one of vibration, speed, temperature, pressure, and current in the motorized system; diagnosing a health of the motorized system based on the measured attribute; providing a diagnostics signal based

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on the diagnosed health; and providing a control signal to selectively adjust cavitation in the motorized system based on the diagnosed health.” Independent claims 19, 22, and 36 have been amended to recite like aspects. Similar aspects of the invention are recited in claims 13 and 14 as filed, and, therefore, the subject amendments do not require further search by the Examiner. Further support for the amendments to the claims can be found throughout the specification. For example, “The control signal 64 can further be provided to reduce cavitation to a prescribed low level to meet process constraints and to extend machinery lifetime to a specific time horizon (e.g., to allow for mission completion). Alternatively, controller 71 may provide the signal 64 to slightly increase cavitation to that which is less damaging, to the extent possible, in order to meet process (e.g., mission survival) needs and to ensure process/mission completion.” (Page 22, lines 21-26.) Gotou *et al.* does not describe such claimed aspects of the subject invention.

Specifically, Gotou *et al.* does not describe providing a control signal to selectively adjust cavitation in a motorized system. Indeed, the Examiner states, in the rejection of claims 13 and 14, that “Gotou *et al.* does not disclose the method of claim 1 wherein providing the control signal comprises providing the control signal to increase or reduce [e.g., adjust] cavitation.” The Examiner relies on Hays *et al.* to teach such aspects of the presently claimed invention in the rejection of claims 13 and 14. However, and in anticipation of a rejection under §103(a), Hays *et al.* does not overcome the deficiencies of Gotou *et al.* with respect to independent claims 13 and 14, nor with respect to amended claims 1, 19, 22, and 36.

Specifically, Hays *et al.* does not disclose a *control signal that selectively adjusts cavitation* in a motorized system. The Examiner cites Column 8, lines 37-48 as teaching such aspects; however, the cited section merely states that “The method of the present invention may be used to assist a maintenance engineer in the diagnosis of rotating equipment...[and] is based on the use of the pump performance curve as the basis for determining the degradation of the pump due to off design operation; fluid damage from erosion, cavitation...” Nothing in the Examiner’s cited sections or otherwise in Hays *et al.* suggests providing a control signal to adjust cavitation. Rather Hays *et al.* merely discusses diagnosing damage to a pump that might have been caused by cavitation, which

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is very different from providing a real-time control signal to adjust cavitation while it is occurring.

In view of at least the above, it is readily apparent that Gotou *et al.* does not anticipate or make obvious applicants' invention as set forth in independent claims 1, 19, 22, and 36 (and claims 2-3, 18-21, 24, 27-30, and 35 which depend respectively there from.) Therefore, this rejection should be withdrawn.

**II. Rejection of Claims 1, 19-21, 36-38, 40, and 41 Under 35 U.S.C. §102(e)**

Claims 1, 19-21, 36-38, 40, and 41 stand rejected under 35 U.S.C. §102(e) as being anticipated by Madhavan (U.S. 6,004,017). Withdrawal of this rejection is respectfully requested for at least the following reasons. Madhavan does not disclose each and every aspect of the present invention as set forth in the subject claims.

Independent claim 1 has been amended to recite "A method for controlling a motorized system comprising: measuring an attribute of the motorized system, the attribute comprises at least one of vibration, speed, temperature, pressure, and current in the motorized system; diagnosing a health of the motorized system based on the measured attribute; providing a diagnostics signal based on the diagnosed health; and providing a control signal to selectively adjust cavitation in the motorized system based on the diagnosed health." Independent claims 19, 22, and 36 have been amended to recite like aspects. Madhavan fails to disclose such claimed aspects as set forth in the subject claims.

Madhavan merely discloses an algorithm for *predicting or avoiding* an episode of "chatter" in a machining tool. Chatter is a "self-excited relative vibration between the workpiece and the cutting tool in common machining processes such as turning processes on a lathe..." (Column 1, lines 30-33.) Madhavan does not disclose *providing a control signal to selectively adjust cavitation* in a motorized system as set forth in the subject independent claims.

Thus, Madhavan fails to anticipate or make obvious applicants' invention as set forth in independent claims 1, 19, and 36 (and claims 20-21, 37-38, and 40-41, which depend respectively there from). This rejection should be withdrawn.

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### **III. Rejection of Claims 4-8, 12-14, 25, 26 and 42 Under 35 U.S.C. §103(a)**

Claims 4-8, 12-14, 25, 26 and 42 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Gotou, *et al.* (U.S. 4,933,834) in view of Hays, *et al.* (U.S. 6,260,004). This rejection should be withdrawn for at least the following reasons. Neither Gotou *et al.* nor Hays *et al.*, alone or in combination, teach or suggest all of the claimed aspects of the present invention as set forth in the subject claims.

To reject claims in an application under §103, an examiner must establish a *prima facie* case of obviousness. A *prima facie* case of obviousness is established by a showing of three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) *must teach or suggest all the claim limitations*. See MPEP §706.02(j). The *teaching or suggestion to make the claimed combination* and the reasonable expectation of success *must both be found in the prior art and not based on applicant's disclosure*. See *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) (emphasis added).

Claims 4-8, 12-14, 25, 26, and 42 depend directly or indirectly from independent claims 1, 22, and 36. Claim 9 has been cancelled herein. As discussed in Section I above, Gotou *et al.* does not teach or suggest a “*control signal to selectively adjust cavitation in a motorized system*” as recited in independent claims 1, 22, and 36. Hays *et al.* fails to overcome the deficiencies of Gotou *et al.* with respect to the subject independent claims, as further discussed above in Section I.

Therefore, it is respectfully submitted that neither Gotou *et al.* nor Hays *et al.*, alone or in combination, make obvious applicants' invention as set forth in independent claims 1, 22, and 36 (and claims 4-8, 12-14, 25, 26, and 42, which depend respectively there from). Accordingly, withdrawal of this rejection is respectfully requested.

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**IV. Rejection of Claims 15-17, and 31-34 Under 35 U.S.C. §103(a)**

Claims 15-17 and 31-34 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Gotou *et al.* (U.S. 4,933,834) in view of Edison *et al.* (U.S. 5,586,305). Withdrawal of this rejection is respectfully requested for at least the following reasons. Neither Gotou *et al.* nor Edison *et al.*, alone or in combination, teach or suggest the present invention as set forth in the subject claims.

Claims 15-17 and 31-34 depend from independent claims 1 and 22 respectively. As discussed above in Section II, Gotou *et al.* fails to teach or suggest "*providing a control signal to selectively adjust cavitation*" as set forth in independent claims 1 and 22. Edison *et al.* fails to overcome the deficiencies of Gotou *et al.* with respect to the subject independent claims.

In view of the above comments, it is respectfully submitted that the combination of Gotou *et al.* and Edison *et al.* does not make obvious the subject invention as recited in independent claims 1 and 22 (and claims 15-17 and 31-24 which respectively depend there from). Therefore, this rejection should be withdrawn.

**V. Rejection of Claim 39 Under 35 U.S.C. §103(a)**

Claim 39 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Madhavan (U.S. 6,004,017) in view of Grayson *et al.* (U.S. 5,111,531). Withdrawal of this rejection is respectfully requested for at least the following reasons. Neither Madhavan nor Grayson *et al.*, alone or in combination, teach or suggest the present invention as set forth in the subject claim.

Claim 39 depends from independent claim 36, which is not made obvious by Madhavan, as discussed in Section II above. Grayson *et al.* fails to overcome the deficiencies of Madhavan with respect to independent claim 36. Accordingly, it is respectfully submitted that this rejection should be withdrawn.

**VI. Rejection of Claim 42 Under 35 U.S.C. §103(a)**

Claim 42 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Madhavan (U.S. 6,004,017) in view of Hays *et al.* (U.S. 6,260,004). Withdrawal of this

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rejection is respectfully requested for at least the following reasons. Neither Madhavan nor Hays *et al.*, alone or in combination, teach or suggest the present invention as set forth in the subject claim.

Claim 42 depends from independent claim 36, which is not made obvious by Madhavan, as discussed in Section II above. Hays *et al.* fails to overcome the deficiencies of Madhavan with respect to independent claim 36. Therefore, it is respectfully submitted that this rejection should be withdrawn.

#### CONCLUSION

The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063.

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number listed below.

Respectfully submitted,

AMIN & TUROCY, LLP



Himanshu S. Amin  
Reg. No. 40,894

AMIN & TUROCY, LLP  
24<sup>TH</sup> Floor, National City Center  
1900 E. 9<sup>TH</sup> Street  
Cleveland, Ohio 44114  
Telephone (216) 696-8730  
Facsimile (216) 696-8731